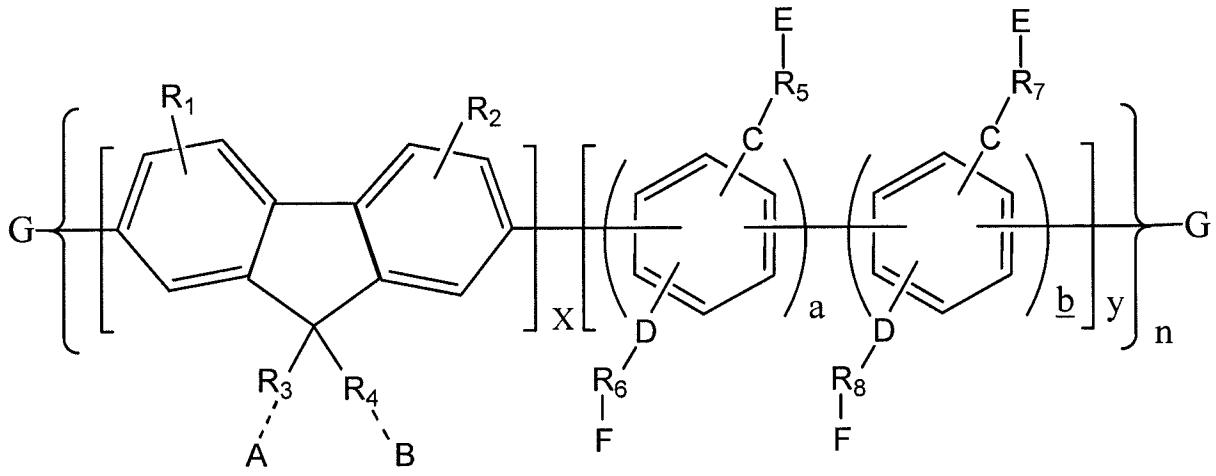
IN THE CLAIMS:

Applicants propose to amend claims 1 through 21, 32 through 36, 38, 48 through 53, 60, 63, 65, and 66. It is proposed that claim 67 be canceled. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended) A conjugated cationic polymer comprising the formula:



wherein:

R_1 and R_2 are identical or different and are each H, a straight or branched alkyl, alkoxyl, ester groups or cyclic crown ether groups having from 1 to about 22 carbon atoms;

A, B, E and F are identical or different and are each H, SiR′R″ or NR′R″, at least one of ~~A, B, E and F is NR′R″, and R′ and R″~~ A and B is a quaternized NR′R″R‴, and R′, R″ and R‴ are independently selected from the group consisting of hydrogen, unbranched or branched alkyl or alkoxyl groups having 1 to about 12 carbon atoms, and ~~(C3 to C10)~~ C3 to C10 cycloalkyl groups;

C and D are identical or different and are each O, S, CO, COO, CRR′, NR′, SiR′R″, wherein R′ and R″ are as defined above;

R_3 and R_4 are identical or different and are independently selected from linear, branched

or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom;

R_5, R_6, R_7 and R_8 are identical or different and are independently selected from linear, branched or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom and that contain at least one aromatic group, substituted or unsubstituted aromatic moiety;

G is hydrogen, halogen, boronic acid, boronate radical or an aryl moiety;

a and b are independently selected and each is a number from 0 to about 100, wherein if a is 0, b is a number from 1 to about 100 and if b is 0, a is a number from 1 to about 100;

x and y are independently selected and each is a number from about 0 to about 100, but x and y cannot both be 0; and

n is a number from 1 to about 1000.

2. (Currently amended) The conjugated cationic polymer according to claim 1, wherein the conjugated polymer is a homopolymer.

3. (Currently amended) The conjugated cationic polymer according to claim 1, wherein the conjugated polymer is a random copolymer.

4. (Currently amended) The conjugated cationic polymer according to claim 1, wherein the conjugated polymer is an alternated copolymer.

5. (Currently amended) The conjugated cationic polymer according to claim 1, wherein R_1 and R_2 are H or straight or branched alkyl groups having from 1 to about 12 carbon atoms.

6. (Currently amended) The conjugated cationic polymer according to claim 1, wherein R_1 and R_2 are alkoxyl groups with from 1 to about 12 carbon atoms.

7. (Currently amended) The conjugated cationic polymer according to claim 1, wherein R′ and R″ are alkyl or alkoxyl groups having from 1 to 4 carbon atoms.

8. (Currently amended) The conjugated cationic polymer according to claim 1, wherein A, B, E and F are independently selected from hydrogen or NR′R″ (but not all are hydrogen).

9. (Currently amended) The conjugated cationic polymer according to claim 1, wherein R_3 and R_4 are linear or branched aliphatic chains having at least one of from 1 to 4 carbon atoms containing at least one heteroatom and at least one aromatic group.

10. (Currently amended) The conjugated cationic polymer according to claim 1, wherein R_3 and R_4 are alkoxyl groups having from 2 to about 12 carbon atoms.

11. (Currently amended) The conjugated cationic polymer according to claim 1, wherein R_5, R_6, R_7 and R_8 are linear or branched aliphatic chains having from 1 to about 8 carbon atoms containing at least one heteroatom.

12. (Currently amended) The conjugated cationic polymer according to claim 1, wherein R_5, R_6, R_7 and R_8 are alkoxyl groups having from 2 to about 12 carbon atoms.

13. (Currently amended) The conjugated cationic polymer according to claim 1, wherein x and y are each a number between 0 and 20, but cannot both be 0.

14. (Currently amended) The conjugated cationic polymer according to claim 13, wherein x and y are each a number between 0 and 10, but cannot both be 0.

15. (Currently amended) The conjugated cationic polymer according to claim 1, wherein a and b are each a number between 0 and 10, but cannot both be 0.

16. (Currently amended) The conjugated cationic polymer according to claim 1, wherein n is a number between 1 and about 50.

17. (Currently amended) The conjugated cationic polymer according to claim 1, wherein G is an aryl moiety containing halogen, boronic acid or boronate radical.

18. (Currently amended) The conjugated cationic polymer according to claim 1, wherein G is hydrogen or an unsubstituted or substituted aryl moiety which does not contain halogen, boronic acid or boronate radical.

19. (Currently amended) The conjugated cationic polymer according to claim 1, wherein a linkage between fluorene and phenylene in the conjugated polymer is on the 1 and 4 positions.

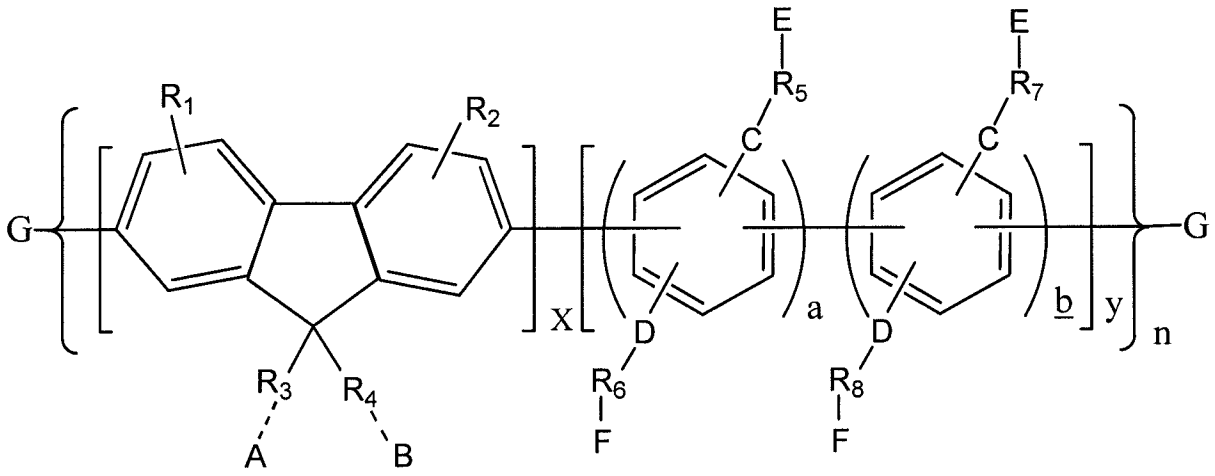
20. (Currently amended) The conjugated cationic polymer according to claim 1, wherein the conjugated polymer comprises a backbone comprising extended phenylene units.

21. (Currently amended) The conjugated cationic polymer according to claim 1, wherein the conjugated polymer comprises a backbone comprising extended fluorene units.

Claims 22-31 (Canceled)

32. (Currently amended) A method of forming a conjugated cationic polymer having a desired solubility in a given solvent, comprising:

providing a conjugated polymer comprising the formula:



wherein:

R_1 and R_2 are identical or different and are each H, a straight or branched alkyl, alkoxyl, ester groups or cyclic crown ether groups having from 1 to about 22 carbon atoms;

A, B, E and F are identical or different and are each H, SiR′R″ or NR′R″~~NR′R″~~, at least one of ~~A, B, E and F is NR′R″, and R′ and R″~~A and B is a quaternized NR′R″R‴, and R′, R″ and R‴ are independently selected from the group consisting of hydrogen, unbranched or branched alkyl or alkoxyl groups having 1 to about 12 carbon atoms, and ~~(C3 to C10)~~C3 to C10 cycloalkyl groups;

C and D are identical or different and are O, S, CO, COO, CRR′, NR′, SiR′R″, wherein R′ and R″ are as defined above;

R_3 and R_4 are identical or different and are independently selected from linear, branched or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom;

R_5, R_6, R_7 and R_8 are identical or different and are independently selected from linear, branched or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom and that contain at least one aromatic group, substituted or unsubstituted aromatic moiety;

G is hydrogen, halogen, boronic acid, boronate radical or an aryl moiety;

a and b are independently selected and each is a number from 0 to about 100, wherein if a is 0, b is a number from 1 to about 100 and if b is 0, a is a number from 1 to about 100;

x and y are also independent independently selected and each is a number from 0 to about 100, but cannot both be 0; and

n is a number from 1 to about 1000; and

quaternizing ~~terminal amino groups~~ at least one of A and B to form a conjugated cationic polymer.

33. (Currently amended) The method according to claim 32, wherein quaternizing ~~terminal amino groups~~ at least one of A and B to form a conjugated cationic polymer comprises quaternizing between about 30% and about 80% of the terminal amino groups.

34. (Currently amended) The method according to claim 32, wherein quaternizing ~~terminal amino groups~~ at least one of A and B to form a conjugated cationic polymer comprises treating the conjugated polymer with an alkyl halide.

35. (Currently amended) The method according to claim 34, wherein treating the conjugated polymer with an alkyl halide comprises treating the ~~terminal amino groups~~ at least one of A and B with bromoethane.

36. (Currently amended) The method according to claim 35, wherein treating the ~~terminal amino groups~~ at least one of A and B with bromoethane comprises stirring the conjugated polymer with bromoethane in dimethyl sulfoxide (DMSO) and tetrahydrofuran (THF).

37. (Previously presented) The method according to claim 36, wherein stirring the conjugated polymer with bromoethane in DMSO and THF comprises using a ratio of DMSO:THF of about 1:4, and wherein stirring the conjugated polymer with bromoethane in DMSO and THF comprises stirring the conjugated polymer at about 50°C for about 5 days.

38. (Currently amended) The method according to claim 35, wherein treating the ~~terminal amino groups~~ at least one of A and B with bromoethane comprises stirring the conjugated polymer with bromoethane in ~~tetrafurohydran~~ tetrahydrofuran.

39. (Previously presented) The method according to claim 38, wherein stirring the conjugated polymer with bromoethane in tetrafurohydran comprises stirring the conjugated polymer at about room temperature for about 24 hours.

40. (Previously presented) The method according to claim 36, further comprising:
evaporating the DMSO and THF;
precipitating the quaternized conjugated cationic polymer;
washing the quaternized conjugated cationic polymer; and
drying the quaternized conjugated cationic polymer.

41. (Original) The method according to claim 40, wherein precipitating the quaternized conjugated polymer comprises adding acetone to the quaternized conjugated polymer followed by centrifugation.

42. (Original) The method according to claim 40, wherein washing the quaternized conjugated cationic polymer comprises washing the quaternized conjugated cationic polymer with at least one of chloroform and acetone.

43. through 47. (Canceled).

48. (Currently amended) The conjugated cationic polymer according to claim 1, wherein at least one of R′, R″ and R‴ is hydrogen.

49. (Currently amended) The conjugated cationic polymer according to claim 48,

wherein at least one of A, B, E and F is ammonium.

50. (Currently amended) The conjugated cationic polymer according to claim 49, wherein the ammonium is quaternized from at least one amino substituent of the conjugated polymer.

51. (Currently amended) The conjugated cationic polymer according to claim 49, wherein at least one of A, B, E and F is ammonium in at least one of the repeating units.

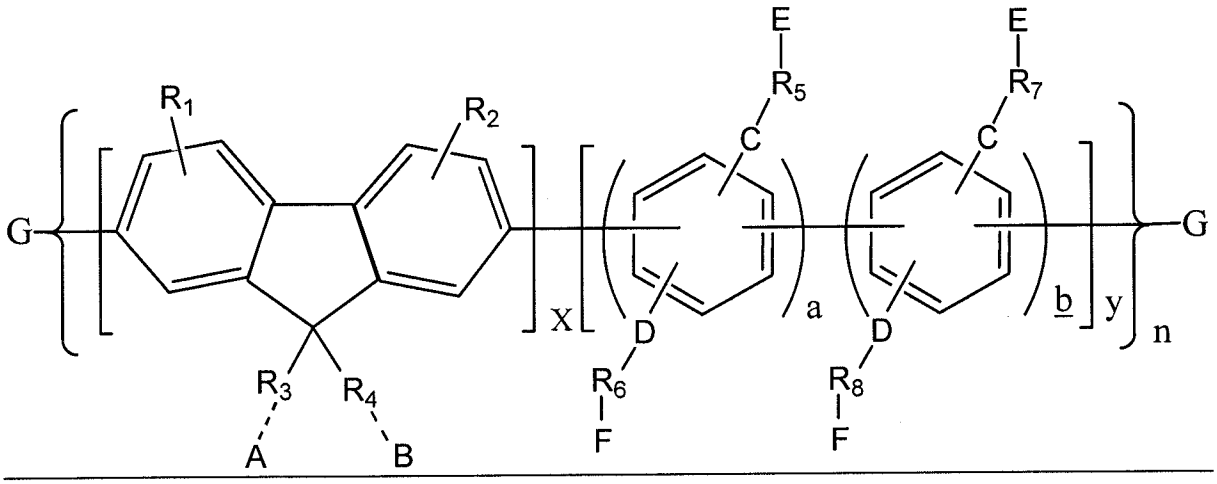
52. (Currently amended) The conjugated cationic polymer according to claim 51, wherein at least two of A, B, E and F are ammonium in at least one of the repeating units.

53. (Currently amended) The conjugated cationic polymer according to claim 50, wherein between about 30% and about 60% of terminal amino substituents in the conjugated polymer are quaternized to ammonium.

Claims 54-59 (Canceled)

60. (Currently amended) ~~The method according to claim 32, wherein providing a conjugated polymer comprises:~~ A method of forming a conjugated cationic polymer having a desired solubility in a given solvent, comprising:

providing monomer precursors of ~~the conjugated~~ a conjugated cationic polymer comprising the formula:



wherein:

R_1 and R_2 are identical or different and are each H, a straight or branched alkyl, alkoxyl, ester groups or cyclic crown ether groups having from 1 to about 22 carbon atoms;

A, B, E and F are identical or different and are each H, SiR′R″ or NR′R″, at least one of A and B is a quaternized NR′R″R‴, and R′, R″ and R‴are independently selected from the group consisting of hydrogen, unbranched or branched alkyl or alkoxyl groups having 1 to about 12 carbon atoms, and C3 to C10 cycloalkyl groups;

C and D are identical or different and are O, S, CO, COO, CRR′, NR′, SiR′R″, wherein R′ and R″ are as defined above;

R_3 and R_4 are identical or different and are independently selected from linear, branched or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom;

R_5, R_6, R_7 and R_8 are identical or different and are independently selected from linear, branched or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom and that contain at least one aromatic group, substituted or unsubstituted aromatic moiety;

G is hydrogen, halogen, boronic acid, boronate radical or an aryl moiety;

a and b are independently selected and each is a number from 0 to about 100, wherein if a is 0, b is a number from 1 to about 100 and if b is 0, a is a number from 1 to about 100;

x and y are also independent independently selected and each is a number from 0 to about 100, but cannot both be 0; and

n is a number from 1 to about 1000;

~~, the monomer precursors comprising the terminal amino groups;~~

quaternizing ~~the terminal amino groups~~ at least one of A and B of the monomer precursors; and

synthesizing the conjugated polymer from the quaternized monomer precursors.

61. (Previously presented) The method according to claim 60, wherein synthesizing the conjugated polymer from the quaternized monomer precursors comprises synthesizing the conjugated polymer by the Suzuki coupling reaction.

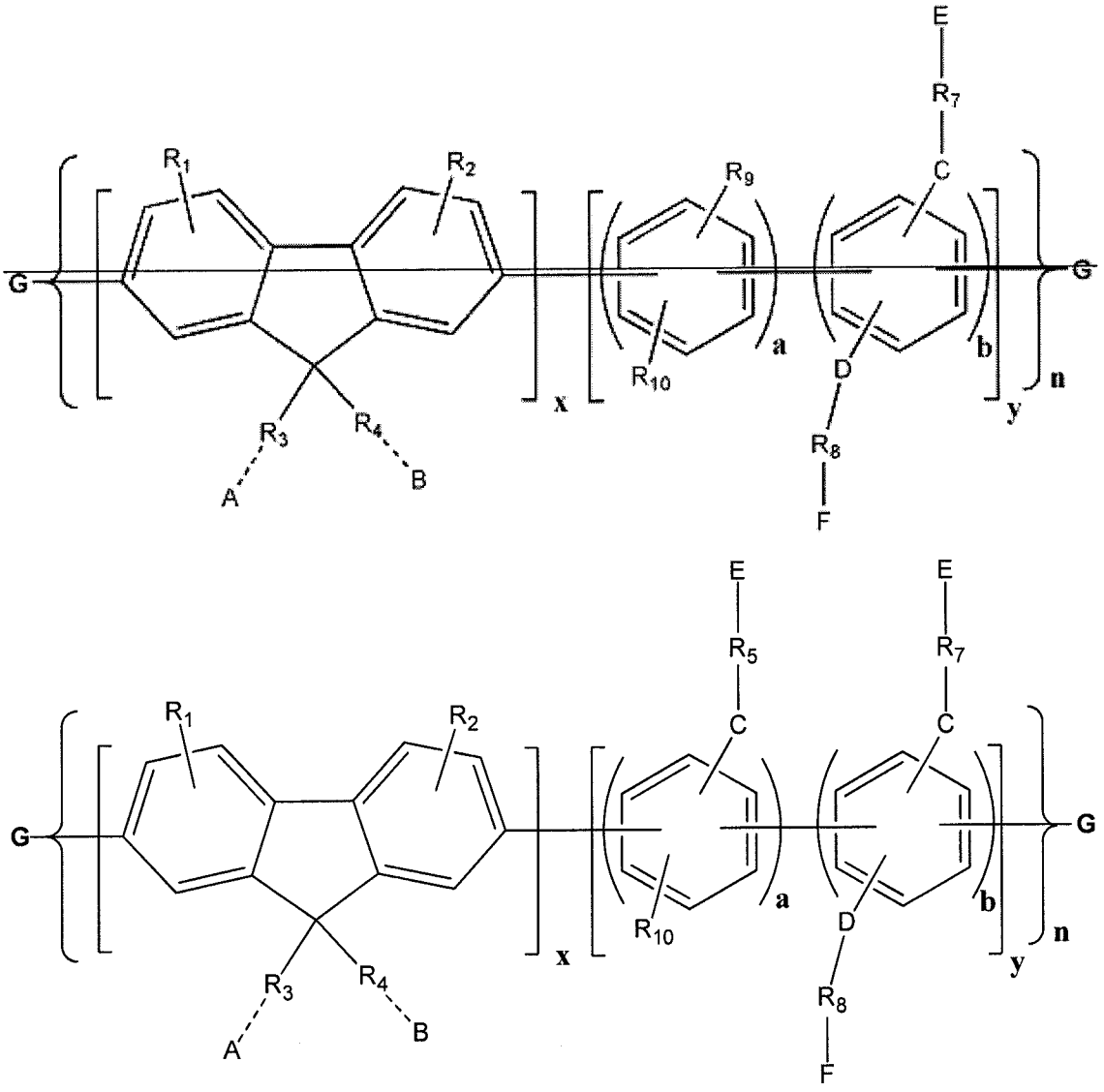
62. (Previously presented) The method according to claim 60, further comprising determining a solubility of the conjugated polymer and calculating the amount of monomer precursors required to increase the solubility of the conjugated polymer.

63. (Currently amended) The method according to claim 60, further comprising determining a solubility of the conjugated polymer and quaternizing the ~~terminal amino groups~~ at least one of A and B to render the conjugated cationic polymer soluble in water.

64. (Canceled).

65. (Currently amended) The method according to claim 32, wherein quaternizing terminal amino groups of the conjugated polymer comprises quaternizing the ~~terminal amino groups~~ at least one of A and B to an extent necessary to provide solubility of the conjugated cationic polymer in at least one of dimethyl sulfoxide, methanol, and water.

66. (Currently amended) A conjugated cationic polymer comprising the formula:



wherein:

R_1 and R_2 are identical or different and are each H, a straight or branched alkyl group, alkoxyl groups, ester groups or cyclic crown ether groups having from 1 to about 22 carbon atoms;

A, B, E and F are identical or different and are each H, SiR′R″ or NR′R″, at least one of ~~A, B, E and F is NR′R″, and R′ and R″~~ A and B is a quaternized NR′R″R‴, and R′, R″ and R‴ are

independently selected from the group consisting of hydrogen, unbranched or branched alkyl or alkoxyl groups having 1 to about 12 carbon atoms, and ~~(C3 to C10)~~ C3 to C10 cycloalkyl groups;

R_3 and R_4 are identical or different and are independently selected from linear, branched or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom;

R_5, R_6, R_7 and R_8 are identical or different and are independently selected from linear, branched or cyclical saturated or unsaturated aliphatic moieties that contain at least one heteroatom and that contain at least one aromatic group, substituted or unsubstituted aromatic moiety;

R_9 and R_{10} are different and are each H, C—R_5—E or D—R_6—F, and at least one of R_9 and R_{10} comprises a cationic functional group;

C and D are identical or different and are each O, S, CO, COO, CRR′, NR′, SiR′R″, wherein R′ and R″ are as defined above;

G is hydrogen, halogen, boronic acid, boronate radical or an aryl moiety;

a and b are independently selected and each is a number from 0 to about 100, wherein if a is 0, b is a number from 1 to about 100 and if b is 0, a is a number from 1 to about 100;

x and y are independently selected and each is a number from 0 to about 100, but cannot both be 0; and

n is a number from 1 to about 1000.

67. (Canceled).